

## The Effect of Mamuju Arterial Road (MAR) Development To Change In Land Use

Fadhliana A Jasa<sup>1</sup>, Muhammad Yamin Jinca<sup>2</sup>, Rosady Mulyadi<sup>3</sup>

<sup>1</sup>Postgraduate Student, Master Engineering of Infrastructure Planning, Hasanuddin University

<sup>2</sup>Professor, Department of Urban and Regional Planning, Hasanuddin University

<sup>3</sup>Lecturer, Department of Architecture, Hasanuddin University Makassar-Indonesia,

Corresponding Author: Fadhliana A Jasa

**ABSTRACT:** Mamuju as the provincial capital of West Sulawesi has also been developed from time to time as a result of the development the outskirts of town tend to be slow. The aims of this research are: (1) to identify factors influencing land use change in the area along Mamuju Arterial Road (MAR) and (2) to know the impact of the MAR development of the surrounding land use change. This research was conducted in the area along Mamuju Arterial Road Mamuju City Province, West Sulawesi. Data were collected by spreading questionnaires to the community as respondents in the area along MAR; and secondary data through related agencies and stakeholders. Data were analyzed by using qualitative and quantitative descriptive analysis that is a statistical analysis through probability values land use change. The results show that the significant factors affecting land use change in the region along MAR are accessibilities land value. The impact of the MAR construction, on the changes in land use in the surrounding areas is the change of land function so that the activity on the land will also change, there will be an increase of the built up land and the land price.

**KEYWORD:** Road Infrastructure, Land use, Land value, Activity

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### I. INTRODUCTION

The development in question can be the physical development of an urban. The development of urban areas has been usually a manifestation of the desire of the people in an area grow and develop in terms of economic, political, social, cultural and security, in geographical dimensions, the development is influenced by internal and external aspects. Land use change is the result of road construction [1].

Mamuju as the capital of West Sulawesi province experienced the development from time to time, the dynamics of rapid urban development and the existence of other factors that cause problems in its development. Mamuju regency is established as a center of economic growth in West Sulawesi and continues to absorb labor for the industrial, trade and services sectors. The employment of these three sectors has increased from year to year, so that space utilization also develops along with the increase in existing activities [2]. The system of development activities in the Mamuju region is directed to improve the development and equity of the people's welfare. This concerns the fulfillment of the needs of the community, including in the provision of facilities and basic infrastructure supporting the procurement is managed in an integrated [3].

The spread of land use in the Mamuju region tends to be concentrated in the downtown area. This case causes the provision of infrastructure and facilities supporting the activities of urban areas are more prevalent in the city center. As a result, the development of the area of Mamuju Regency is uneven, the development of the periphery tends to be slow. In addition, population growth, the central tendency of the population is in the center of the district, which is a region with high densities, while in the north and south areas of Mamuju Regency the population density is relatively low.

There are three main factors that determine the pattern of development and growth of the city, namely human factors, activities and movement patterns. Movement factor is important in regional development, movement arises due to human factors and activities or activities of the region [4]. Without the movement from the region to other regions, then a region will not be able to grow.

One of the efforts undertaken by the Government of Mamuju Regency is to build Arterial Road, in order to develop the access, to increase the existing activities in the region Mamuju Regency to the international port of Belang Belang. Mamuju Arterial Road (MAR) is a road built along the beach with a width of 30 meters, two lanes and four lanes along approximately 4.5 km that have been built to date. Arterial road is a solution to reduce congestion that arises in the middle of the city, but the construction of arterial road as part of the transportation system should be able to become a movement infrastructure of the region Mamuju Regency.

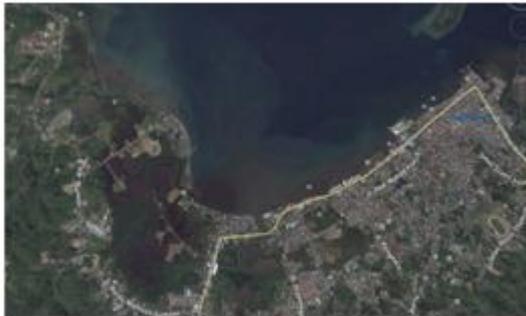


Figure 1. Before building MAR



Figure 2. After building MAR

The population in this study is people living along Mamuju Arterial Road corridor of Mamuju Regency and Mamuju sub-district, especially Binanga village which is 109 land owners, using probability sampling technique that is sampling technique giving equal opportunity for every member of the population to be elected as member sample. The sample of this research is 52 samples with criterion of society aged 18 - 65 years, and community residing along the corridor MAR. The probability test factors of public perception, i.e. population, facilities, infrastructure, accessibility, value of land, environment and government policy [5].

## II. RESULTS

The increase of population in the center of the capital of West Sulawesi is due to the number of urbanization and the availability of other necessities of life also increases. The development of the city causes the need for increased access to roads become one of the alternative solutions to the problem. Road construction aims to facilitate accessibility and impact on land use phenomena due to increased roads that cause other factors to influence land use change, such as population factors, facilities, infrastructure, accessibility, land values, environment and government policies [6].

Increasing the number of residents resulted in increased demand for the availability of facilities and infrastructure, and to meet the needs of the population has been building MAR infrastructure to address congestion problems in the city center. Improved roads can facilitate accessibility and mobility of people, goods and services and affect changes in various aspects of community life, including land use in the area along the unproductive, unproductive MAR and bring a positive impact on land use. However, there is also a negative impact if road-building is continuing uncontrollably [7,8,9].

Land use changes in the area along MAR are influenced by factors of population, facilities, infrastructure, accessibility, land values, environment and government policy. Based on the questionnaire data of respondents on the factors that affect the land use change. The perception of each influencing factor is divided into five scales, [10,11,12] namely: very influential given a score 5, influenced given a score 4, enough effect given a score 3, less influence given score 2, and no effect given score 1.

### Factors Influence the Land Change

Based on the results of questionnaires from 52 respondents who became research samples, it is known that the factors that affect the occurrence of land use changes in the area along the MAR is the factor of accessibility and value of land significantly affect the land use change. Relatively influential factors are the environment, population and infrastructure, Government policies and means of influence, but not significantly to land use change.

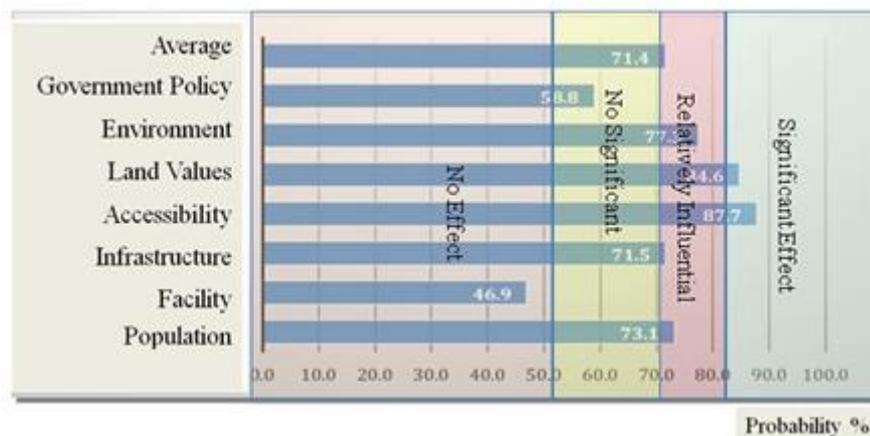


Figure 3. Factors Influence the Land Change

Facility factor is considered to have no effect due to its limited availability so as not to fulfil the needs of the people who live around MAR, such as education facilities and health facilities are still lacking, while the infrastructure is not being fulfilled is clean water network, which has not been served maximally and drainage network that is not functioning properly.

**Change in Land Value (CLV)**

Road improvements are an alternative to the congestion problem solving in the city center. However, increased roads have an impact on land use changes in the vicinity. Land use changes can be seen with three indicators, namely land function, land use intensity, and land price. Changes in land function will show changes in the function of agricultural land into trade and settlements and offices. Changes in land use intensity will show changes in the percentage of land area built, and green open space, and changes in land prices reflected by changes in the value of the Sale Value of The Tax Object (SVTO).

**III. DISCUSSION**

The percentage (%) change in the SVTO in the Tadui Urban Village is an average increase of 13.70% per year. An increase in the SVTO in 2017 has increased quite high after the construction of roads done in 2014. In 2007 the SVTO Binanga Village amounted to IDR 48,000/m<sup>2</sup> and in 2012 rose to IDR 103.000/m<sup>2</sup> next in 2017 to IDR 394.000/m<sup>2</sup>.

**Table 1.** Changes in Land Values (IDR 1000, -/m<sup>2</sup>)

Villages	Year		
	2007	2012	2017
Tadui	36	64	130
Binanga	48	103	394
Mamunyu	66	285	442
Average	50	151	322

This increased from 2007 to 2012 with an average annual increase of 16.49% and from 2012 to 2017 the average increase of 30.78%. At the time of Mamuju Arterial development. Mamunyu Villages also increased by 9.17% per year. The average increase of TOSV per year is 16.35% as the impact of road construction in Third Villages to the value of land.

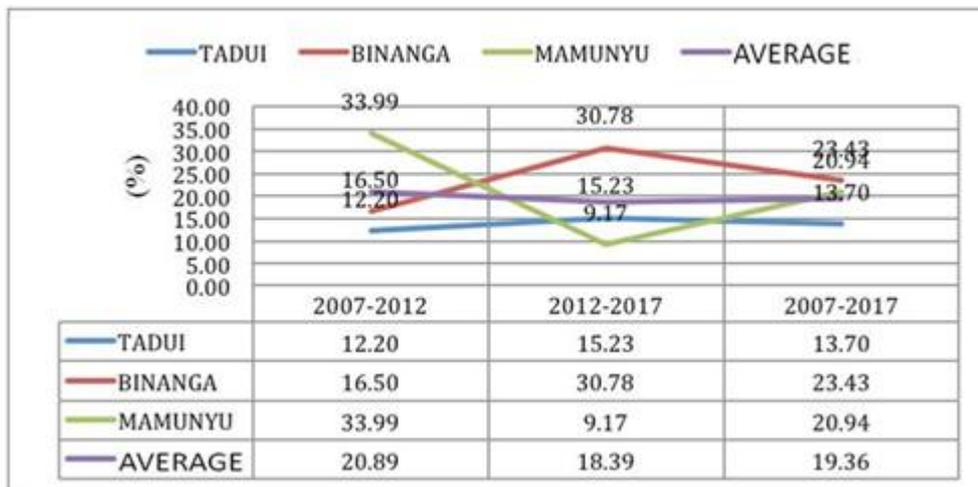


Figure 4. The Change of Land Function Transfer

The change of SVTO that occurred in Tadui, Binanga and Mamuyu Urban Villages experienced a considerable increase after the increase in MAR were conducted. Road improvements have impacted on changes in land prices as measured by the SVTO in each urban village that continues to increase annually, and are increasingly interested in purchasing land in the area along the road of MAR on the grounds that accessibility factors are easy after road improvements.

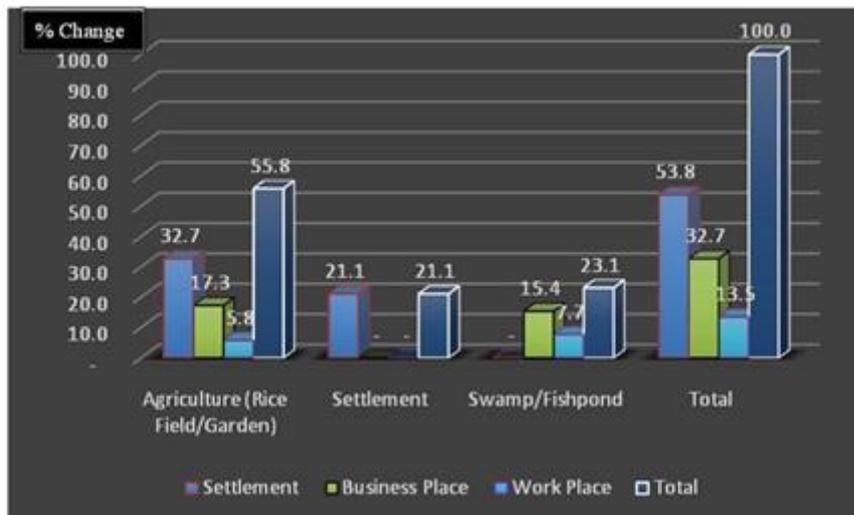


Figure 5. The Change of Land Function Transfer

For the type of land conversion that has the highest percentage is the conversion of agricultural land, rice field and garden into a settlement that is as much as 55.8%. This is clearly visible along the MAR where the land that was originally agricultural land, paddy fields and gardens has now been transformed into a constructed land with various types of land and activity functions. Transfer of other land from agricultural land, rice field and plantation to the work places or offices with percentage of 17% and 5.8% respectively. Meanwhile, land conversion from swamps/ponds to place of business and work each with a percentage of 15.4% and 7.7%. The remaining 21.1% is the percentage of respondents who do not experience land conversion. This means that people who live in the area along the Mamuju arterial road from before upgrading the road until after improving the road function of the fixed land that is settlement land, does not change the function of land.

**IV. CONCLUSIONS AND RECOMMENDATIONS**

Factors affecting land use change in the area along the Mamuju Arterial Road (MAR) in addition to road improvement factors, factors that have the highest influence value are accessibilities, and land value. Impact of Mamuju Arterial Road improvement to the surrounding land use changes are: (a) Changes in land function so that activities or activities on the land will also change. (b) Changes in land use intensity as measured by an

increase in the area of built land. (c) Increase in land prices causes an increase in land and building taxes. (d) Economic, social and environmental impacts on people residing in the area along the Mamuju Arterial Road. The government needs to review the policy of development permit carried out from agricultural land mainly for industrial purposes, trade and services as well as housing. The Policy of the Regional Spatial Plan (RSP) needs to be emphasized, especially the control over land use change and to analyze the impact on society and the environment.

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